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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/219,468 | 12/23/1998 | PETER TREFONAS III | 50351 | 4760 |

7590 06/11/2003

PETER F. CORLESS
EDWARDS & ANGELL, LLP
P.O. BOX 9169
BOSTON,, MA 02209

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| EXAMINER |
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THORNTON, YVETTE C

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| ART UNIT | PAPER NUMBER |
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1752

DATE MAILED: 06/11/2003

19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/219,468

Applicant(s)

TREFONAS ET AL.

Examiner

Yvette C. Thornton

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12 and 14-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12 and 14-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This is written in reference to application number 09/219468 filed on December 23, 1998 which was filed as a CPA on January 15, 2002.

Request for Continued Examination (RCE)

1. The request filed on March 31, 2003 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 09/219468 is acceptable and a RCE has been established. An action on the RCE follows.

Response to Amendment

2. Claims 1, 3-5, 7-11 and 13 have been cancelled. Claims 12 and 14-21 are currently pending.

3. The objection to instant claim 18 is hereby withdrawn. The examiner failed to consider the amendment to the said claim in paper number 5. The examiner apologizes for the error.

4. The rejection of the claims under 35 USC 112, 2nd paragraph is hereby withdrawn. The examiner has interpreted the term "substantially" to be within the teachings on page 7, lines 21-27 of the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claim 16 recites the limitation "the tertiary nitrogen radical" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim 12 fails to require the presence of the said nitrogen radical.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

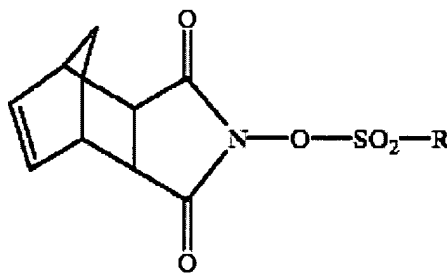
8. Claims 12, 14-15 and 17-21 rejected under 35 U.S.C. 102(e) as being anticipated by Trefonas, III et al. (US 6136501 A). Trefonas exemplifies a comparison polymer comprising isobornyl methacrylate, t-butyl methacrylate, methacrylic acid, methacrylonitrile and itaconic anhydride (molar ratio 31:22:10:14:23) in example 8 (c. 15, l. 15-37). Trefonas further exemplifies (examples 9-21) inventive polymers comprising isobornyl methacrylate, X, methacrylic acid, methacrylonitrile and itaconic anhydride wherein X is selected from the group consisting of 1-methylcyclopentyl methacrylate, 2,3-dimethyl-2-butyl methacrylate, 3-methyl-3-pentyl methacrylate, 2,3,3-trimethyl-3-butyl methacrylate, 1,2-dimethyl-cyclopentyl methacrylate, 2,3,4-trimethyl-3-pentyl methacrylate and 2,23,4,4-pentamethyl-3-pentyl methacrylate (see Table 1; c. 15, l. 40-c. 16, l. 13). The said polymers were admixed with a photoacid generator norbornene dicarboximide perfluorooctanesulphonate (MDTPFOS), 1,8-diazabicyclo[5.4.0]undec-7-ene, SILWET 7604 and propylene glycol methyl ether acetate to form photoresist compositions (see ex. 22-36; table 2; c. 16, l. 15-c. 17, l. 18). In examples 37-51, the said compositions were spin-coated on top a silicon wafer having an organic antireflective film. The wafer was then baked, rapidly cooled to room temperature, exposed

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(193 nm), post-exposure baked and developed with TMAH to form a resist pattern (c. 17, l. 43-61).

It is the examiner's position that the taught polymers, including the comparative polymer all meet the limitations of a polymer that contains pendant photoacid labile moieties (i.e., t-butyl, isobornyl) and is completely free of aromatic groups. 1,8-diazabicyclo[5.4.0]undec-7-ene meets the limitation of an amine compound comprising a tertiary nitrogen alicyclic ring member. The examiner notes that the exemplified ^{compound} is disclosed in the instant specification as a preferred compound (see spec. pg. 8, l. 28). The taught silicon wafer meets the limitation of a microelectronic wafer substrate as set forth in instant claim 21.

Although Trefonas fails to exemplify a composition comprising a non-ionic acid generator, it does teach that preferred PAGs for imaging at 193 nm include imidosulfonates



such as compound of the formula:

. Specifically

preferred is N-[(perfluorooctanesulfonyl)-oxy]-5-norbornene-2,3-dicarboximide (c. 11, l. 17-35). One of ordinary skill would readily envision a resist composition such as those exemplified in the given examples comprising the specifically preferred compound N-[(perfluorooctanesulfonyl)-oxy]-5-norbornene-2,3-dicarboximide as the photoacid generator. It is the examiner's position that N-[(perfluorooctanesulfonyl)-oxy]-5-norbornene-2,3-dicarboximide is a non-ionic photoacid generator.

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9. The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Response to Arguments

10. Applicant's arguments with respect to the instant claims have been considered but are of little moment in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Trefonas, III (US 6280911 B1), which teaches, exemplifies a photoresist composition comprising 1,8-diazabicyclo[5.4.0]undec-7-ene (ex. 4-19). Trefonas is not citable as prior art under 35 USC 102(e) because it is not to "another" as required by the statute.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvette C. Thornton whose telephone number is 703-305-0589. The examiner can normally be reached on Monday-Thursday 8-6:30.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet C. Baxter can be reached on 703-308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1495.

15. Please note that the examiner has changed her name from "Clarke" to "Thornton".



Yvette Clarke Thornton
Junior Examiner
Art Unit 1752

yct
June 10, 2003